Net. Sec Report 1

Sec 3

Problem 6:-

a) $d_{prop} = \frac{m}{s}$ seconds

b) $d_{trans} = \frac{L}{R}$ seconds

c) $d = d_{prop} + d_{trans} = \frac{m}{s} + \frac{L}{R}$ seconds

d) The last bit is put on the link after finishing transmission

e) by the time transmission finishes, first bit will still be on the link towards Host B

f) first bit should reach Host B before $t = d_{trans}$

g) $d_{trans} = d_{prop}$

$$\Rightarrow \frac{L}{R} = \frac{m}{s} \Rightarrow m = \frac{sL}{R} = \frac{2.5 \times 10^8 \times 120}{56 \times 10^3} = 536 \text{ km}$$

Problem 11:-

$d_{proc_1} = d_{proc_2} = 0$

for immediate transmission $\Rightarrow \frac{L}{R_2} = \frac{L}{R_3} = 0$

$$d_{end\text{-}to\text{-}end} = \frac{d_1}{s_1} + \frac{d_2}{s_2} + \boxed{\frac{L}{R}} \rightarrow \text{from first host} + \frac{d_3}{s_3}$$

$$= \frac{5 \times 10^6}{2.5 \times 10^8} + \frac{4 \times 10^6}{2.5 \times 10^8} + \frac{10^6}{2.5 \times 10^8} + \frac{1500 \times 8}{2 \times 10^6}$$

$$= 46 \text{ ms}$$

P23:

a) That is the transmission delay

So, inter-arrival time = $\frac{L}{R_s}$

b) it is possible for the 2nd packet to queue if

$$\frac{L}{R_s} + \frac{L}{R_s} + d_{prop} < \frac{L}{R_s} + \frac{L}{R_c} + d_{prop}$$

for queuing not to happen

$$\frac{2L}{R_s} + d_{prop} + T \geq d_{prop} + \frac{L}{R_s} + \frac{L}{R_c}$$

$$\Rightarrow T \geq \frac{L}{R_c} - \frac{L}{R_s}$$

P24: Fedex over-night dilevery

for 100 Mbps link

Transfer time = $\frac{4 * 10^{12} * 8}{100 * 10^6} = 3200000$ s

$\simeq$ 37 days

Clearly, fedex will be a better choice